



SNOWFLAKE IOVATION

ANALYST

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THE BOTTOM LINE

iovation deployed Snowflake's cloud data warehouse to accelerate their product development, improve analytic query efficiency, and enhance understanding of company data. The company tried several different vendor implementations before settling on Snowflake and have had consistent success since deployment, scaling the project smoothly as the company grew. Overall, the project deployed quickly with minimal training and had a short payback period, leading to low total cost of ownership and upfront spending.

ROI: **214%**

Payback: **0.5 years**

Average annual benefit: **\$299,074**

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THE COMPANY

iovation was founded in 2004 and is based in Portland, Oregon. It provides cybersecurity and fraud protection to its customers in the form of software and fraud analysis. iovation's products consist of ClearKey, LaunchKey, FraudForce, and SureScore, each with a specific anti-fraud function.

iovation processes up to 25 million customer transactions per day through their software-as-a-service (SaaS) offering, generating a real-time flow of fraud evaluations with a response time of less than 100 milliseconds. More than 1,500 major brands rely on iovation to decrease risk for online transactions.

THE CHALLENGE

Because iovation receives large amounts of data for analysis from its customers, it has always needed a robust database that can handle routine analytics queries. The company began using Oracle’s database and analytics platform in 2010, but quickly realized that it would be too expensive to scale as the company grew. iovation then switched to PostgreSQL open source database but ran into limitations based on its hardware. It then switched to HPE Vertica, which worked well at first but ended up being too costly to scale.

Cost : Benefit Ratio | **1 : 2.6**

Apart from the cost of scaling its previous solutions, iovation also found that its data science team struggled with inefficient querying due to two separate problems. The first issue was that analytics jobs needed to be staged; that is, queries needed to be carefully scheduled so that compute times would not overlap too much and overload the database. The second issue was that the data iovation received was initially in JSON format, which was not supported by any of its legacy analytics engines. This led to a lot of manual extract-transfer-load (ETL) work in order to be able to analyze customer data.

THE STRATEGY

Because there was not an immediate need to find a new database and analytics platform, the company had an informal evaluation process with Snowflake, beginning in 2014. The eventual iovation project leader met with Snowflake and demoed the product. It was quickly apparent that the product was powerful and accurate, and that it solved all the issues that iovation had with staging queries and scaling.

TYPES OF BENEFITS



Once the iovation team verified that they had good connectivity to Amazon Web Services, which hosts Snowflake, they began to pump their historical data up to the cloud database and establish a pipeline for their new incoming data. The data transfer stage took about two weeks, and overall the deployment took about one

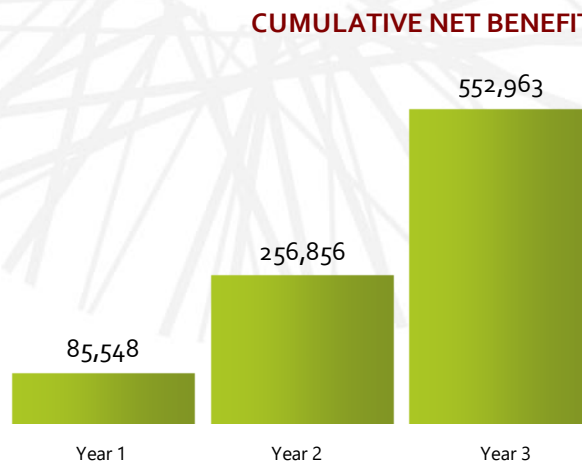
month. Snowflake’s data warehouse uses the ubiquitous coding language SQL, so there was very little learning curve for the iovation data team. In general, the company made sample queries to guide new users, provided a few hours of dedicated training, and had an ongoing support channel so that users could request help when they needed it. The company as a whole has continued to improve on its use of Snowflake over the years since initial deployment.

Support from Snowflake has been very responsive. Although the product was still relatively new when iovation deployed, Snowflake has been quick to fix bugs and make improvements as needed.

KEY BENEFIT AREAS

The project’s benefits consisted mainly of fixing inefficiencies and reducing the total cost of ownership (TCO) of the database solution. Snowflake’s cloud-only subscriptions model made scaling storage and compute time easier to predict and overall less expensive than their previous deployments that had large hardware costs. The fact that Snowflake supports raw JSON data was an unexpected benefit. In total, benefits included:

- Reduced hardware and software costs. The subscription costs for Snowflake were almost half of the costs of the legacy solution, which included hardware and software.

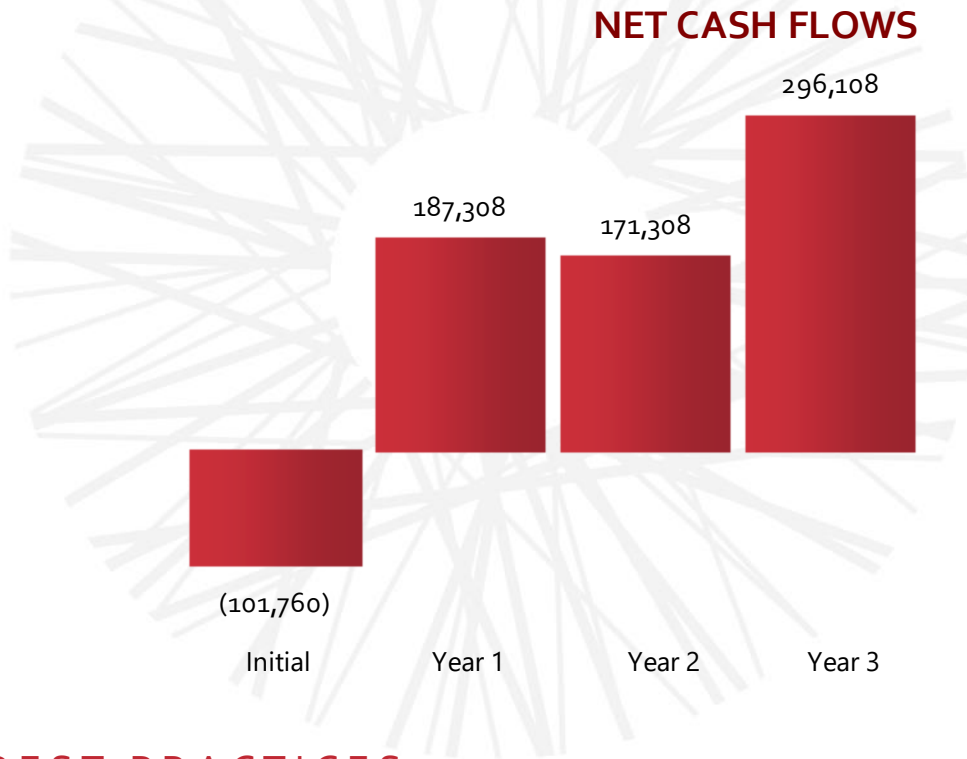


- Reallocated staff. The previous database required a full-time database manager to maintain. With the software-as-a-service (SaaS) subscription model of Snowflake, the manager’s tasks were taken care of by the vendor and the manager was reallocated to another position, saving a full year’s salary annually.

- Productivity increases. Both the data science team and more casual users of the product had increases in productivity stemming from better query staging capabilities and faster ETL. Because Snowflake supports raw JSON data natively, the data science team needs to do much less data preparation.

KEY COST AREAS

Costs of the project were straightforward and limited, leading to a low TCO. The bulk of the cost was the annual software subscription costs, which included product maintenance. During the deployment, two internal IT members worked on data transfer and pipeline connectivity. Only one internal IT member works on the project on an ongoing basis, accounting for a very small wage cost. The final cost was the lost wages of training time for users, approximately two hours of training each.



BEST PRACTICES

Unsurprisingly, after several different projects, a cloud-only SaaS deployment ended up providing the lowest TCO and correspondingly highest benefit ratio. Snowflake and iovation worked well together on both a general and specific level. Generally, iovation needed a product that scaled predictably and was easy to use, benefits that all companies expect in their solutions.

Specifically though, iovation needed a product that supported their native data format in order to limit the amount of work needed to run queries. At first, iovation was not even aware that such a product existed, and it was a happy coincidence that Snowflake fixed their known project goals as well as their unknown project goals, so to speak. Companies should be sure to thoroughly research the market so that they have a clear picture of how their specific needs might be addressed by certain vendors.

The reallocation of staff should always be factored in to subscription costs when comparing SaaS solutions to license-based solutions. Because SaaS products offload maintenance to the vendor and often include the maintenance fees in the subscription costs, reduced employee wages can account for a large savings that may not be obvious initially.

CALCULATING THE ROI

Nucleus quantified the initial and ongoing costs of software subscription fees, personnel time to implement and support the application, and employee training time over a 3-year period to calculate iovation's total investment in Snowflake.

Direct benefits quantified included the reduced hardware and software costs of legacy solutions and reallocated employee wages. The indirect benefits quantified included the increase in productivity driven by the faster ETL and query processes. These productivity savings were quantified based on the average annual fully loaded cost of an employee using a correction factor to account for the inefficient transfer between time saved and additional time worked.

FINANCIAL ANALYSIS

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Annual ROI: 214%

Payback period: 0.5 years

BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	247,500	251,500	256,300
Indirect	0	47,308	47,308	47,308
Total per period	0	294,808	298,808	303,608

COSTS - CAPITALIZED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

COSTS - DEPRECIATION SCHEDULE	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

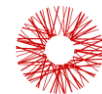
COSTS - EXPENSED	Pre-start	Year 1	Year 2	Year 3
Software	90,000	100,000	120,000	0
Hardware	0	0	0	0
Consulting	0	0	0	0
Personnel	8,875	7,500	7,500	7,500
Training	2,885	0	0	0
Other	0	0	0	0
Total per period	101,760	107,500	127,500	7,500

FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
All government taxes	45%			
Cost of capital	7.0%			
Net cash flow before taxes	(101,760)	187,308	171,308	296,108
Net cash flow after taxes	(55,968)	103,019	94,219	162,859
Annual ROI - direct and indirect benefits				214%
Annual ROI - direct benefits only				168%
Net Present Value (NPV)				255,548
Payback period				0.5 years
Average Annual Cost of Ownership				114,753
3-Year IRR				181%

All calculations are based on Nucleus Research's independent analysis of the expected costs and benefits associated with the solution.

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